Hydrocracking and Hydrotreating Process Technology Training

Description

Introduction

This training course is to provide an in-depth, yet practical review of both hydrotreating and hydrocracking technologies for the refining of petroleum. The course will cover topics ranging from the chemistry of hydrotreating and hydrocracking to a discussion of the design of commercial processes and reactors. The program will also address fcc feed pretreatment, diesel and jet fuel production, naphtha hydrotreating, and hydrogen production and purification.

The Outlines :

Introduction

- Review of refining trends
- Product specifications and environmental concerns
- Overview of hydrotreating processes, yields and configurations

Chemistry And Principles Of Hydroprocessing

- Hydrotreating reactions and process principles
- Chemistry and kinetics of sulfur removal
- Chemistry of nitrogen and oxygen removal
- Hydrotreating catalysts
- Olefin and aromatics saturation
- Coke formation and catalyst deactivation
- Mild hydrocracking
- Resid chemistry

Naphtha Pretreating

- Process variables and feedstock effects
- Commercial flow schemes

- Effects on reformer operation

Feed And Operating Variable Effects

- Feed properties
- Operating variable effects
- HDS as FCC pretreatment
- Hydrotreating requirements and process economics

Diesel And Jet Fuel Production

- Trends in demand/quality
- Effect of feed/process on yields/quality
- Cut point effects
- Cetane improvers, cloud/pour point improvers
- Commercial considerations in hydroprocessing
- Catalyst presulfiding
- Catalyst deactivation and regeneration
- Process design/mechanical design features

Commercial Hydrocracking

- Hydrocracking feedstocks
- Pretreatment considerations
- Review of hydrocracking reactions/heats of reaction
- Hydrocracking process configurations
- Reactor design
- Process variables and catalysts
- Catalyst deactivation and regeneration
- Hydrocracking yields and product properties

Hydroprocessing Mechanical Considerations And Troubleshooting

- Design principles
- Common problem areas
- Safety issues

Hydrogen Production

- Steam reforming for hydrogen production
- Hydrogen purification options